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Methodology for the technical and economic analysis of a product at the projection stage

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Abstract

© 2018 Taylor & Francis Group, London. This article presents the methodological basics of the technical and economic analysis at the stage of innovative product creation. This type of analysis allows us to optimize technical solutions by the economic efficiency criterion and to increase the quality of production at optimum costs of its production and operation that will increase the competitiveness of production. In this study, the maintenance of technical and economic analysis at separate design stages of products is considered, as well as the methods and indicators allowing the optimization of technical solutions on the basis of the chosen economic criteria are provided. The role of functional and cost analysis as a highly effective method of the technical and economic analysis promoting considerable reduction of functional and unjustified expenses at an innovation design stage is defined. Methods of economic optimization based on an economic assessment of multicriteria are offered. By generalizing the target criterion, either the indicator with respect to the relation of total expenses on all life cycles for unit of consumer properties and quality, or the return indicator of integrated quality as a function of the use value (usefulness) and the cumulative expenses corresponding to an object is provided. The factors influencing these economic criteria are revealed and classified, which are allowed to purposefully influence on the change of its size during both production and the operation of a product.

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